Sparking a Revival

Vitally Needed Provisions in the Energy Policy Act of 2005 Will Breathe New Life Into U.S. Geothermal Industry Development

By Ted J. Clutter – Geothermal Resources Council

Signed into law by President George W. Bush at a Sandia National Laboratories (Albuquerque, NM) ceremony on August 8, the Energy Policy Act of 2005 is a big win for the geothermal industry in the United States. The new legislation includes a number of provisions that will put geothermal on a level playing field with other renewable energy options and spark new geothermal energy developments in the West.

To resounding applause, Bush said: "The bill I sign today will help diversify our energy supply by promoting alternative and renewable energy sources. The bill extends tax credits for wind, biomass, landfill gas and other renewable electricity sources. The bill offers new incentives to promote clean, renewable geothermal energy... And by developing these innovative technologies, we can keep the lights running while protecting the environment and using energy produced right here at home. When you hear us talking about less dependence on foreign sources of energy, one of the ways to become less dependent is to enhance the use of renewable sources of energy."

A wave of geothermal power plants were built nationwide during the late 1980s and early 1990s, but interest cooled with rock-bottom prices for natural gas followed by utility deregulation that forced electric utilities to seek the lowest-cost power options. For over a decade, geothermal power plants totaling more than 2,000 megawatts (MW) of capacity have reliably generated clean, baseload renewable power in California, Nevada, Utah and Hawaii, but few new facilities were built.

With recent power shortages in the West, however, interest in geothermal power production resurged with Renewable Portfolio Standards that mandate utilities to provide a portion of their electricity from alternative power sources. Yet even with these newly created markets, the relatively higher risk and cost of geothermal compared to tax-supported wind energy developments hurt prospects for new geothermal power operations.

Passage of the Energy Policy Act of 2005 balances the equation. With its tax provisions, the new law approved by Congress and signed by President Bush will revolutionize geothermal energy use in the United States. Fair and equal Production Tax Credit (PTC) provisions will finally put geothermal on a par with wind energy, encouraging construction of new geothermal power plants in many western states.

The new mandate also includes significant improvements to existing law related to leasing of geothermal resources on federal land. Revisions to leasing, siting and royalty rules in the Geothermal Steam Act of 1970 will not only help open new geothermal power reserves, but stimulate new geothermal direct-use projects that will help rural economies. At the same time, U.S. dependence on fossil fuels will be reduced.

Renewable Electricity Production Tax Credit

In its "Section 45" tax provisions, the Energy Policy Act of 2005 extended and modified the 1.9-cent per kilowatt-hour (kWh) Renewable Energy Production Tax Credit (PTC) for electricity generated from renewable sources, including geothermal. The provision extends the "placed-in-service" date for new geothermal power plants by two years (through Dec. 31, 2007). The law also applies to closed- and open-loop biomass facilities, small irrigation power facilities, trash combustion facilities, and wind farms. Qualifying facilities receive the PTC for electricity produced over a 10-year period from their placed-in-service date.

"The U.S. Congress expanded the PTC to include geothermal power operations last year, but the period of time allowed for placed-in-service date was too short (Dec. 31, 2005) to have a truly significant impact on new development," explains Geothermal Energy Association (Washington, DC) Executive Director Karl Gawell. "In addition, the PTC was only provided for five years instead of the 10 years granted by the Energy Policy Act. The decision to give geothermal the full 10-year credit period, placing it on equal terms with wind, is a huge victory for the geothermal community, and will help spark new development across the West."

The PTC has been the primary impetus behind the wind industry's success over the past decade in building new power generation facilities across the nation. Congress' decision last year to offer the PTC to geothermal power developers has generated significant interest in new production. According to Dr. Jim Combs (Geo Hills Associates – Reno, NV), there are 483 megawatts (MW) of new geothermal Power Purchase Agreements (PPAs) between utilities and geothermal developers in California, Nevada, Arizona and Idaho (see table, next page).

"Considering the average 30-percent availability of wind power vs. 95-percent average for baseload geothermal power, these and other new projects represent the generation equivalent of all 2,000 MW of wind projects currently operating in California!" Gawell exclaimed. In addition to projects with PPAs noted above, there a number of other geothermal power projects being quietly negotiated

in California, Nevada, Idaho, Utah, New Mexico, and Alaska. "The PTC offered by the Energy Policy Act of 2005 will help ensure their fruition," said Gawell.

Geothermal Leasing Provisions

The John Rishel Geothermal Steam Act Amendments of 2005 included in the Energy Policy Act represent the first major overhaul of the Geothermal Steam Act since it became law in 1970. U.S. Sen. Harry Reid (D-NV) and U.S. Rep. Jim Gibbons (R-NV) pushed hard to include the revisions in the Energy Policy Act. Named for the House Resources Committee professional staff member who originally envisioned the legislation, the amendments improve the way geothermal leases are handled by the U.S. Bureau of Land Management (BLM). "The new provisions provide clear direction for making geothermal energy development a priority in agency land-use planning efforts," said Gawell. "They also ensure that the BLM will have the financial resources to implement the new provisions and quickly reduce a 30-year backlog of unfinished geothermal lease applications." Among other things, the amendments provide for:

Competitive Lease Sale Requirements

- Qualified individuals and companies may nominate lands to be leased.
- In states with nominations, BLM must hold lease sales at least every two years.
- Tracts sold to highest bidder in competitive sale.
- Tracts not sold available non-competitively for two years.
- BLM may lease multiple leases as a block if information indicates they could be produced as a unit.
- Pending Lease Applications:
  - — BLM and Forest Service directed to complete plans needed for leasing; and
  - — Applications pending processed under law in effect prior to amendment unless applicant chooses to place them under the new procedures.

Direct Use

Direct-use applications—where geothermal fluids are used for home heating, spas, greenhouses, or aquaculture—are found today in 26 states. But federal law has dramatically stifled direct uses on public lands, and the new energy bill changes that. It simplifies procedures to obtain leases for direct use purposes, replaces complex royalty payments with a straight-forward fee schedule, and allows state and local governments to use geothermal resources for public purposes at only a nominal charge. Hundreds of communities and businesses in the West will now be able to use geothermal resources to meet their energy needs. The H.R. 6 Steam Act revisions include the following to enhance direct-use development on federal lands:

- DOI shall establish a schedule of fees in lieu of royalty for direct use.
- State, tribal or local governments shall be charged only a nominal fee for use of the resources.
- Secretary may identify lands to be leased exclusively for direct use available to first applicant subject to 90-day public notice period. If there is competitive interest expressed in the lands, they are offered in next competitive lease sale.
- Allows Secretary to modify size of the lease for direct-use leases.

Royalties

- New leases shall provide for a royalty between 1 percent to 2½ percent of gross proceeds from the sale of electricity during the first ten years, and between 2 percent and 5 percent thereafter.
- Secretary may accept credits in kind for value of electricity under a contract with a state or county government entitled to royalties.
- Royalties are shared 25 percent for the federal government, 50 percent for the state, and 25 percent for the county where the producing lease is located.
- Existing leases not converting to the new royalty system will receive a 50-percent reduction in royalties owed for their

New Geothermal Power Generation Projects with Signed Power Purchase Agreements – May 2005

Company	State	Project Area	PPA Provider	Project MWs
ORMAT Nevada, Inc.	California	Ormesa Geothermal Complex	Southern California Public Power Authority	10
ORMAT Nevada, Inc.	California	Heber Geothermal Complex	Southern California Public Power Authority	10
CalEnergy Company	California	Salton Sea KGRA	Imperial Irrigation District	215
Clearwood Electric LLC	California	California Geothermal Leases	California Department of Water Resources	30
ORMAT Nevada, Inc.	Nevada	Galena Geothermal Steamboat	Sierra Pacific Power Company	30
ORMAT Nevada, Inc.	Nevada	Desert Peak Power Plant	Nevada Power Company	18
Vulcan Power Company	Nevada	BLM Leases	Southern California Edison Company	120
Vulcan Power Company	Arizona	BLM Leases	Arizona Public Service Company	20
U.S. Geothermal, Inc.	Idaho	Raft River	Idaho Power Company	10
U.S. Geothermal, Inc.	Idaho	Raft River	Idaho Power Company	20
			Total New Geothermal Project MWs with PPAs	**483**
			Power Generation Equivalent to New Installed Wind Projects	**1,449**

Dr. Jim Combs (Geo Hills Associates)

first four years of production if they begin production within 6 years of enactment or expand production more than 10 percent during this same 6-year period.
- Existing leases may apply to convert to a gross proceeds royalty within 18 months of effective date for new royalty regulations (new gross proceeds rate must yield same royalty payment as would have been received under prior royalty rate).
- Existing leases may be converted to include direct use fee schedule.
- Secretary shall consult with state and local governments about any proposed royalty changes.

Coordination of Geothermal Leasing and Permitting on Federal Land
- Secretary of Interior and Agriculture shall submit MOU to Congress within 180 days.
- MOU shall set forth administrative procedures for lease processing, a 5-year program for leasing on National Forest lands, and a program to reduce the backlog of lease applications by 90 percent within five years.

Assessment of Geothermal Energy Potential
- Secretary of Interior acting through the U.S. Geological Survey (USGS) is directed to update the 1978 Geothermal Resource Assessment and submit it to Congress within three years.

Unit and Communitization Agreements
- Authorities and procedures for unitization are established in detail.

Royalty on Byproducts
- The additional 5-percent royalty on th e production of byproducts from geothermal leases is removed.

Authority of Secretary to Readjust Terms, Conditions, Rentals and Royalties
- General authority is retained, and limit of any increase to 50-percent retained, but remainder of language setting 22½-percent royalty maximum and automatic acceptance of adjustment after 30 days, etc., is removed.

Crediting of Rental Toward Royalty
- For producing leases, rentals are credited against royalty payments.

Lease Duration and Work Commitment Requirements
- Established 10-year primary lease term, with two 5-year extensions allowed if minimum work requirements established by the Secretary are met.
- Payments in lieu of work required for a limited number of years that does not impair achieving "diligent development of the resource."
- Transition rules will be applied to existing leases through regulation.
- Minimum work requirements do not apply once production in commercial quantities is achieved.

Advanced Royalties Required for Cessation of Production
- Leases may continue to be held for up to ten years if commercial production stops by payment of an advance royalty (force majeure, and some other reasons excepted).

Annual Rental
- Lease rentals for the first 10 years are $1 per acre for a non-competitive lease, and $2 per acre for the first year, and $3 per acre in years 2-10 for a competitive lease.
- After the tenth year, rentals are $5 per acre for all leases.
- Leases not paying rental on time are notified of non-payment and given 45 days to pay with a late fee before termination.

Deposit and Use of Geothermal Lease Revenues for 5 Fiscal Years
- The federal share of geothermal royalties is available to the Secretary, without further appropriation, to implement the Geothermal Steam Act of 1970 and the provisions of this Act.
- The Secretary may transfer funds to the Forest Service for the purposes of geothermal leasing and use authorizations.

Acreage Limitations
- Maximum lease size is 5,120 acres, maximum lease holdings in any one state is 51,200 acres.

Technical Corrections
- There are various technical corrections, particularly to the titles of the existing law, and direct use is defined.

Intermountain West Geothermal Consortium
- Through the Idaho National Laboratory, and managed by Boise State University, an Intermountain West Geothermal Consortium is established, subject to availability of appropriations.

Clean Renewable Energy Bonds

With the Energy Policy Act, Congress created new Clean Renewable Energy Bonds (CREBs) to provide an incentive roughly equivalent to the PTC for qualified issuers, including governmental agencies, Indian tribal governments, and mutual or cooperative electric companies. CREBs can be used to finance 95 percent of capital expenditures for qualifying facilities. This provision is effective for bonds issued after Dec. 31, 2005 and before Dec. 31, 2007, and is limited to a total of $800 million.

Research and Resource Assessment

The Energy Policy Act also mandates that the U.S. Department of Energy ensure that future geothermal energy research efforts will be goal-oriented. It also directs the agency to conduct a near-term assessment of the resource potential of all renewable technologies, including geothermal, with publication of results in annual reports. The Geothermal Steam Act outlined above requires the U.S. Geological Survey to submit to Congress an updated nationwide geothermal resources assessment within three years. ■